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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,031	09/09/2003	Yakov Roizin	TSL-125	3283
22888	7590	12/22/2004	EXAMINER	
BEVER HOFFMAN & HARMS, LLP TRI-VALLEY OFFICE 1432 CONCANNON BLVD., BLDG. G LIVERMORE, CA 94550			HUYNH, ANDY	
			ART UNIT	PAPER NUMBER
			2818	

DATE MAILED: 12/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/659,031	Applicant(s) ROIZIN ET AL.	
	Examiner Andy Huynh	Art Unit 2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2004.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
4a) Of the above claim(s) 14-21 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1,4-6,8-10,12,13,22,24,25 and 27-29 is/are rejected.
7) ☒ Claim(s) 2,3,7,11,23 and 26 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 09 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

In the Response to Restriction Requirement dated November 26, 2004, Applicant has elected without traverse Species I, claims **1-13 and 22-29** is acknowledged. Accordingly, claims **14-21** are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 35 § 1.142(b) and MPEP § 821.03. Applicant has the right to file a divisional application covering the subject matter of the non-elected claims **14-21**.

Information Disclosure Statement

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Drawings

The drawings are objected for the following reason.

There are two duplicated figure numbers 11A-11B.

Claim Objections

Claims **5 and 6** are objected to because of the following reasons.

Claims **5 and 6** are identical.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim **27** is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim **27** recites the limitation “the spacing” in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims **1, 12, 22 and 28** are rejected under 35 U.S.C. 102(e) as being anticipated by Hui et al. (USP 6,765,254 hereinafter referred to as “Hui”).

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Regarding claim **1**, Hui discloses in Fig. 1 and the corresponding texts as set forth in column 3, line 40-column 5, line 63, a pre-metal dielectric structure for a silicon-oxide-nitride-oxide-silicon (SONOS) memory transistor 100 comprises:

- a first pre-metal dielectric layer/ILD layer 110 located over the SONOS memory transistor;

- a light-absorbing structure/UV radiation blocking layer 112 located over the first-pre-metal dielectric layer;

- a second pre-metal dielectric layer/oxide cap layer 116 located over the light-absorbing structure; and

- a first metal layer located over the second pre-metal dielectric layer (col. 5, lines 60-62).

Regarding claims **12 and 28**, Hui discloses in Fig. 1 the pre-metal dielectric structure further comprising one or more contact openings 118 formed through the first and second pre-metal dielectric layers and the light-absorbing structure, wherein the contact openings expose one or more surfaces of the light-absorbing structure.

Regarding claim **22**, Hui discloses in Fig. 1 and the corresponding texts as set forth in column 3, line 40-column 5, line 63, a method for fabricating a pre-metal dielectric structure for a silicon-oxide-nitride-oxide-silicon (SONOS) memory transistor 100, the method comprises:

- forming a first pre-metal dielectric layer/ILD layer 110 over the SONOS memory transistor;

- forming a light-absorbing structure/UV radiation blocking layer 112 over the first-pre-metal dielectric layer;

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forming a second pre-metal dielectric layer/oxide cap layer 116 over the light-absorbing structure; and

forming a first metal layer over the second pre-metal dielectric layer (col. 5, lines 60-62).

Claims **1 and 22** are rejected under 35 U.S.C. 102(e) as being anticipated by Ngo et al. (USP 6,774,432 hereinafter referred to as "Ngo").

Regarding claim **1**, Ngo discloses in Figs. 1-3 and the corresponding texts as set forth in column 4, line 25-column 11, line 25, a pre-metal dielectric structure for a silicon-oxide-nitride-oxide-silicon (SONOS) memory transistor 10, 50 comprises:

a first pre-metal dielectric layer 20 located over the SONOS memory transistor;

a light-absorbing structure/UV radiation blocking layer 38 located over the first-pre-metal dielectric layer;

a second pre-metal dielectric layer 46 located over the light-absorbing structure; and

a first metal layer 40a located over the second pre-metal dielectric layer (Fig. 3).

Regarding claim **22**, Ngo discloses in Figs. 1-3 and the corresponding texts as set forth in column 4, line 25-column 11, line 25, a method for fabricating a pre-metal dielectric structure for a silicon-oxide-nitride-oxide-silicon (SONOS) memory transistor 10, 50, the method comprises:

forming a first pre-metal dielectric layer 20 located over the SONOS memory transistor;

forming a light-absorbing structure/UV radiation blocking layer 38 located over the first-pre-metal dielectric layer;

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forming a second pre-metal dielectric layer 46 located over the light-absorbing structure;
and
forming a first metal layer 40a located over the second pre-metal dielectric layer (Fig. 3).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims **4-6, 8-10, 13, 24, 25 and 29** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hui et al. (USP 6,765,254 hereinafter referred to as "Hui") or Ngo et al. (USP 6,774,432 hereinafter referred to as "Ngo").

Regarding claims **4-6 and 10**, Hui or Ngo discloses the all claimed limitations except for the light absorbing structure comprises a continuous layer of polycrystalline silicon, a first patterned layer of polycrystalline silicon or amorphous silicon. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to utilize the light-absorbing structure comprising a continuous layer of polycrystalline silicon, a first patterned layer of polycrystalline silicon or amorphous silicon, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

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Regarding claims **8-9**, Hui or Ngo discloses the all claimed limitations except for the pre-metal dielectric structure wherein the first patterned layer of polycrystalline silicon comprises a plurality of polycrystalline silicon islands, and wherein the polycrystalline silicon islands are separated by spacing corresponding to the minimum design rule spacing. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to form wherein the first patterned layer of polycrystalline silicon comprising a plurality of polycrystalline silicon islands, and wherein the polycrystalline silicon islands are separated by spacing corresponding to the minimum design rule spacing, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Regarding claims **13 and 29**, Hui or Ngo discloses the all claimed limitations except for the pre-metal dielectric structure/the method further comprises sidewall dielectric material located on the one or more exposed surfaces of the light-absorbing structure. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to form sidewall dielectric material located on the one or more exposed surfaces of the light-absorbing structure since it was known in the art that sidewall dielectric material is used for electrical insulation to protect the light-absorbing structure.

Regarding claims **24-25**, Hui or Ngo discloses the all claimed limitations and the method wherein the light-absorbing structure is formed by depositing except for the light-absorbing structure is formed by depositing a first layer of polycrystalline silicon over the first pre-metal dielectric layer, and further comprises the step of patterning the first polycrystalline silicon layer. It would have been obvious to one having ordinary skill in the art at the time of the invention

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was made to form the light-absorbing structure formed by depositing a first layer of polycrystalline silicon over the first pre-metal dielectric layer, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to further include the step of patterning the first polycrystalline silicon layer, since it has been held that the provision of adjustability, where needed, involves only routine skill in the art. In re Stevens, 101 USPQ 284 (CCPA 1954).

Allowable Subject Matter

Claim 2-3, 7, 11, 23 and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, since the prior art made of record and considered pertinent to the applicant's disclosure does not teach or suggest the claimed limitations. Hui and Ngo, taken alone or in combination, fail to teach the claimed invention the pre-metal dielectric structure, in combination with all other features in the claim, further comprises a barrier film located between the SONOS memory transistor and the first pre-metal dielectric layer as recited in claim 2; wherein the light-absorbing structure further comprises a second patterned layer of polycrystalline silicon; and an intermediate pre-metal dielectric layer located between the first and second patterned layers of polycrystalline silicon as recited in claim 7; wherein the first and second pre-metal dielectric layer comprise barrier films adjacent to the light-absorbing structure, wherein the barrier films suppress out-diffusion of impurities from other portions of the first and

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second pre-metal dielectric layer to the light-absorbing structure as recited in claim 11; the method, in combination with all other features in the claim, further comprises forming a silicon nitride barrier film over the SONOS memory transistor and below the first pre-metal dielectric layer as recited in claim 23; and wherein the light-absorbing structure is further formed by depositing an intermediate pre-metal dielectric layer over the patterned first polycrystalline silicon layer; depositing a second layer of polycrystalline silicon over the intermediate pre-metal dielectric layer; and patterning the second polycrystalline silicon layer as recited in claim 26.

Conclusion

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy Huynh, (571) 272-1781. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The Fax number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the -status of this application or proceeding should be directed to the receptionist whose phone number is (703) 308-0956.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ah

12/14/04



Andy Huynh

Patent Examiner